

**Study Guide**

For use with pages 34–38

**GOAL****Subtract integers.****SUBTRACTING INTEGERS****Words** To subtract an integer, add its opposite.**Numbers**  $4 - 8 = 4 + (-8) = -4$ **Algebra**  $a - b = a + (-b)$ **EXAMPLE 1****Subtracting Integers**

a.  $9 - 20 = 9 + (-20)$

$= -11$

To subtract 20, add its opposite,  $-20$ .Add 9 and  $-20$ .

b.  $10 - (-3) = 10 + 3$

$= 13$

To subtract  $-3$ , add its opposite, 3.

Add 10 and 3.

c.  $-6 - (-4) = -6 + 4$

$= -2$

To subtract  $-4$ , add its opposite, 4.Add  $-6$  and 4.**Exercises for Example 1**

Find the difference.

1.  $7 - 16$

2.  $-8 - 5$

3.  $9 - (-11)$

4.  $-1 - (-9)$

**EXAMPLE 2****Evaluating Variable Expressions**Evaluate the expression when  $y = -19$ .

a.  $-37 - y$

b.  $y - 20$

**Solution**

a.  $-37 - y = -37 - (-19)$

$= -37 + 19$

$= -18$

Substitute  $-19$  for  $y$ .To subtract  $-19$ , add 19.Add  $-37$  and 19.

b.  $y - 20 = -19 - 20$

$= -19 + (-20)$

$= -39$

Substitute  $-19$  for  $y$ .To subtract 20, add  $-20$ .Add  $-19$  and  $-20$ .

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**Exercises for Example 2**Evaluate the expression when  $m = -8$ .

5.  $15 - m$

6.  $-23 - m$

7.  $m - 3$

8.  $30 - m - 13$

**EXAMPLE 3 Evaluating Change**

Mount Whitney in California has an elevation of 14,494 feet above sea level. Death Valley in California has an elevation of 282 feet below sea level. What is the difference between these elevations?

**Solution**

Difference in elevation	=	Elevation of Mt. Whitney	−	Elevation of Death Valley	
					Substitute values.
					To subtract $-282$ , add 282.
					Add 14,494 and 282.

$$\begin{aligned}
 &= 14,494 - (-282) \\
 &= 14,494 + 282 \\
 &= 14,776
 \end{aligned}$$

**Answer:** The difference between the elevations is 14,776 feet.**Exercises for Example 3**

Find the change in temperature or elevation.

9. From  $-26^{\circ}\text{C}$  to  $13^{\circ}\text{C}$

10. From  $-4^{\circ}\text{F}$  to  $-16^{\circ}\text{F}$

11. From  $-140$  feet to  $-57$  feet

12. From 33 meters to  $-71$  meters